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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/863,266 | 05/24/2001 | Yoshihiro Izumi | 925-197 | 9027 |

23117 7590 08/23/2004

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EXAMINER

SCHECHTER, ANDREW M

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 08/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/863,266

Applicant(s)

IZUMI ET AL.

Examiner

Andrew Schechter

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,5,7-9 and 19-21 is/are pending in the application.
4a) Of the above claim(s) 8 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1,2,4,5,7,9 and 19-21 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/26/04.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 4, 5, 7, 9, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Kumagai, et al.*, Japanese Patent Document No. 2000-98367 in view of *Tsujimura et al.*, U.S. Patent No. 6,556,271.

Considering claim 1, *Kumagai* discloses [see machine translation provided in the office action of 4 March 2004] an active matrix substrate comprising: switching elements disposed in a shape of a matrix [see paragraph 0022], gate signal lines ["scanning line" attached to gate electrode 2] controlling the switching elements, source signal lines [extended from source electrode 7] connected to the switching elements, an interlayer insulating film [11] formed on the switching elements, the gate signal lines, and the source signal lines; and pixel electrodes [13 and 14] formed over at least the interlayer insulating film and in electrical communication with respective switching elements through contact holes [12] defined in the interlayer insulating film, wherein the pixel electrodes are comprised of a photosensitive conductive material including at least one coloring agent so that at least some of the pixel electrodes function as both pixel electrodes and color filters [14, part of the pixel electrode, is made of a "conductive color

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resist" with "photosensitivity", see paragraph 0040]. The pixel electrode of the claim can either be elements 13 and 14 taken together or, as shown in Fig. 10b, the ITO layer of the pixel electrode can be dispensed with, with layer 14 acting alone as the pixel electrode and color filter.

Kumagai does not explicitly disclose the additional limitation that the source signal lines are formed orthogonal to the gate signal lines. The examiner takes official notice that it is well-known and conventional to do so, and that it would have been obvious to one of ordinary skill in the art at the time of the invention to do so with this device, motivated by the desire to make a standard rectangular array which can be driven by a standard arrangement of gate and signal line drivers at the edge of the panel, among other reasons. (This taking of official notice was also made in the previous office action, and the examiner notes that it was not traversed in the applicant's response.)

Kumagai does not explicitly disclose the amended limitation that the photosensitive conductive material of the pixel electrodes has negative type photosensitivity so that only exposed portions thereof remain, and wherein the gate signal lines and source signal lines are used as masks during exposure of that material from a back side of the substrate, so that an array of pixels have substantially uniform parasitic capacitance between pixel electrodes and signal lines. (The examiner notes that use of the gate and source lines as masks during exposure is a product-by-process limitation, though this is not relevant to the present rejection.)

Tsujimura discloses using negative type photosensitive material [11] for an analogous layer and using the gate and source lines as masks during exposure of the material from the back side of the substrate [see Figs. 1 and 7, for instance, col. 3, lines 26-29, etc.]. *Tsujimura* discloses that this back exposure method equalizes the capacities [capacitances] of the pixel electrodes and the data lines [col. 1, lines 56-62]; in other words, the pixels have substantially uniform parasitic capacitance between pixel electrodes and signal lines. It would have been obvious to one of ordinary skill in the art at the time of the invention to use this back exposure method in making the device of *Kumagai*, motivated by *Tsujimura*'s teachings that it provides uniform parasitic capacitances (hence better display quality) as discussed above, there is no problem of a surface seam resulting from stepper exposure [col. 1, lines 62-63], and since the gate and signal lines are already there, there is no need for an additional mask, reducing the number of manufacturing steps. Claim 1 is therefore unpatentable.

Kumagai's photosensitive conductive material is transparent [inherent, since it works by coloring the light which passes through it], so claim 2 is also unpatentable.

Kumagai discloses making a flat panel display device with this active matrix substrate, so claim 7 is also unpatentable.

Considering the additional limitations of claim 9 over those of claim 1: *Kumagai* also discloses a liquid crystal display comprising a substrate [as discussed above] with address lines, a switching element, a pixel electrode, wherein the pixel electrode comprises a photosensitive conductive material and at least one color agent so that the pixel electrode functions as both a pixel electrode and a color filter, and wherein the

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pixel electrode is photo-patternable due to its photosensitive nature [see paragraph 0049-0052, for instance]. *Kumagai* may or may not explicitly disclose that the pixel electrode is for applying voltage across a liquid crystal layer; the examiner takes official notice that it is well-known and conventional to do so, and that it would have been obvious to one of ordinary skill in the art at the time of the invention to do so with this device, motivated by the desire to use the pixel electrode to control the liquid crystal in a standard way to produce a display device. (This taking of official notice was also made in the previous office action, and the examiner notes that it was not traversed in the applicant's response.) Claim 9 is therefore unpatentable.

The photosensitive conductive material is made from photosensitive resin and conductive particles of indium tin oxide (ITO) [see paragraph 0056], so claims 4 and 5 are also unpatentable.

Claim 19 contains a subset of the limitations in claim 1, so it is also unpatentable. Claims 20 and 21 are analogous to claims 2 and 4, respectively, so they are analogously unpatentable.

Election/Restrictions

1. This application contains claims directed to the following patentably distinct species of the claimed invention:

- I. A flat panel display device.
- II. A flat panel image sensing device.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claims 1, 2, 4, and 5 are generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

2. During a telephone conversation with H. Warren Burnam, Jr., Reg. No. 29,366, a provisional election was made without traverse to prosecute the invention of species I, a flat panel display device, claim 7. Affirmation of this election must be made by applicant

in replying to this Office action. Claim 8 is withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Japanese Patent Document No. 4-81820 to *Yoritomi et al.*, made of record 22 October 2003, discloses an LCD having a pixel electrode comprising a negative type photosensitive conductive material, but does not explicitly disclose color agents in it.


4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

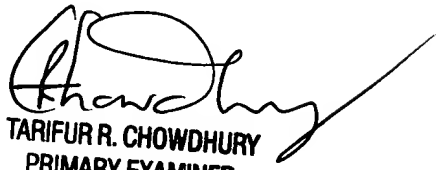
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (571) 272-2302. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Andrew Schechter
11 August 2004


TARIFUR R. CHOWDHURY
PRIMARY EXAMINER